



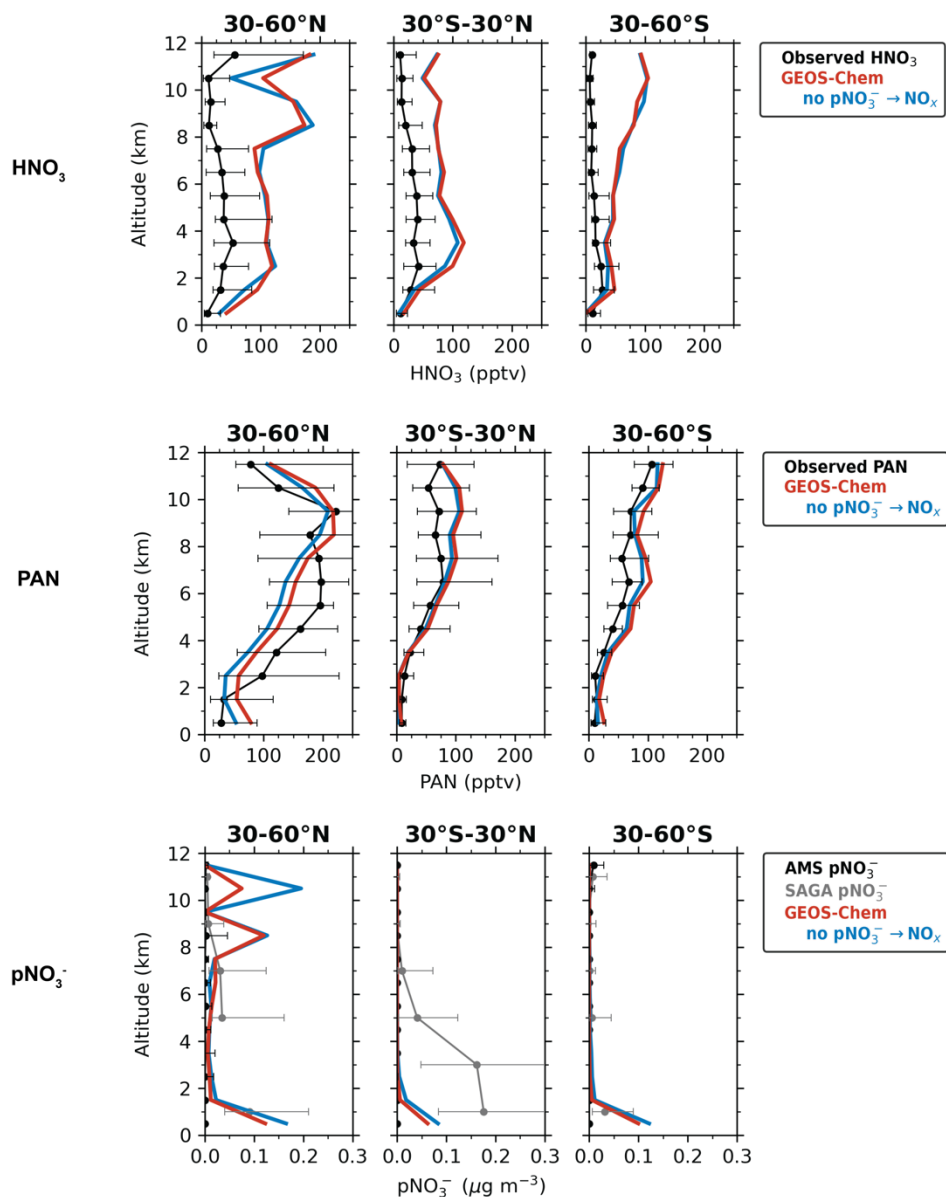
*Supplement of*

## **Nitrogen oxides in the free troposphere: implications for tropospheric oxidants and the interpretation of satellite NO<sub>2</sub> measurements**

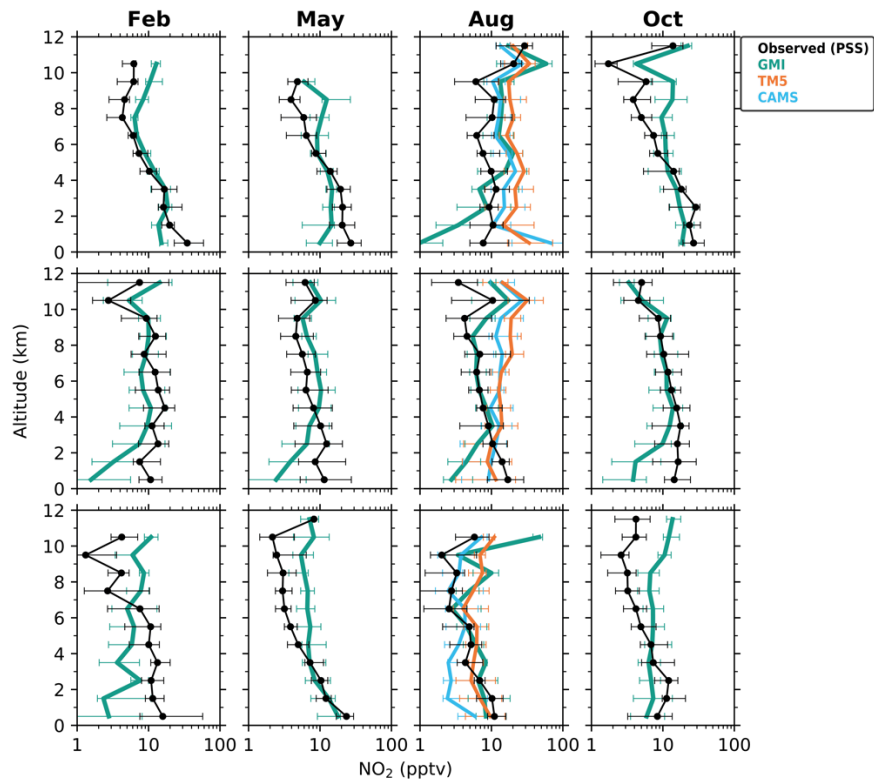
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15 **Figure S1.** Median vertical profiles of  $\text{HNO}_3$ , PAN, and  $\text{pNO}_3^-$  concentrations over the Pacific and Atlantic Oceans during the ATom flight campaigns (2016–18), separated by latitude bands. Observations of  $\text{HNO}_3$  are from the Caltech CIMS instrument, PAN from the NOAA PANTHER instrument, and  $\text{pNO}_3^-$  from the CU Boulder AMS and the UNH SAGA instruments. The AMS  $\text{pNO}_3^-$  is the inorganic component of the AMS nitrate measurements, calculated using the AMS reported organic nitrate fraction. The data selection criteria are as described in the caption of Sect. 2.1. Horizontal bars show the interquartile ranges in 1-km altitude bins. Model results are from our baseline GEOS-Chem simulation and a sensitivity simulation without  $\text{pNO}_3^-$  photolysis.



20 **Figure S2.** Same as Fig. 4 but showing the interquartile range for each altitude bin for the GMI, TM5, and CAMS NO<sub>2</sub> concentrations.